



CDQAP Wildfire Resource Advisory: *Emergency Power, Smoke, Fire Response & Evacuation* August 25th, 2020

Last week California was subjected to over 10,000 [“dry”/rainless lightning strikes](#), causing hundreds of fires. A number of these ignitions subsequently merged into large conflagrations which are still threatening urban and rural areas alike. Some North Coast and Valley dairies have had to address smoke or potential loss of electrical power. A limited few have been threatened with actual property damage from fire.

Below are CDQAP resources providing guidance for dealing with loss of electrical power, wildfire smoke exposure for both employees and livestock, responding to a fire on a dairy and evacuation versus shelter-in-place strategies.

Emergency Electrical Power – Both the current fires raging throughout the state and forecasted fall winds may threaten a facility’s electrical service. After the severe wind events last December, CDQAP distributed a [review article](#) addressing *Public Safety Power Shutoffs* (PSPS). For producers anticipating power loss the most important preparations they can make include:

- Performing a final generator check.
- Ensuring several days fuel supply.
- Updating their emergency contact information with their utility.
- If needed, identifying rental equipment early, before the rush.

Producers needing specific information on expanding emergency power capacity, regulatory requirements, equipment rental, and dairy generator maintenance should visit CDQAP’s webpage, [Dairies & Emergency Power](#).

Smoke Exposure in Employees – While wildfire contains a variety of toxic components, the greatest hazard comes from breathing the smallest particles, ones less than 1/30th the diameter of a human hair. Called PM2.5 particles, they can reach the deepest parts of the lung and even cross into the blood stream. Significant exposure to PM2.5 particles can reduce lung function and provoke asthmatic incidents or heart attacks in susceptible employees. As wildfire smoke increases so does PM2.5 concentration and the *Air Quality Index* or “AQI” as well. An AQI of 500 is equivalent to smoking 25 cigarettes a day. Wildfires can create hazardous conditions with AQI readings of more than 700 for PM2.5.

[Cal/OSHA requires employers](#) with outdoor workers to implement protective measures when the AQI for PM2.5 exceeds 150. These include:

- Monitor air quality in your area. EPA offers a simple and useful site to help with monitor local conditions called [AirNow](#). Other local air monitoring data from the local air district may be available.
- Provide training to workers, including how to determine AQI, identify health effects of wildfire smoke exposure, and how to use approved masks. See UCD's WCAHS wildfire smoke [training materials](#).
- When practicable establish worker protection procedures; change work location, procedures or schedules to reduce exposure to wildfire smoke.
- Provide respiratory protection ([N95 or greater masks](#)) when the AQI for PM2.5 is greater than 150.
 - Employee mask use is optional when the AQI between 151 and 500.
 - Employee mask use is required when the AQI is greater than 500.

The current cloth face coverings required for COVID mitigation do NOT filter substantial amounts PM2.5 particulate matter and [do not meet Cal/OSHA standards](#) for wildfire smoke protection. For additional information and training materials on the subject, UCD's Western Center for Agricultural Health and Safety offers its [Wildfire Resources](#) webpage. The site contains excellent fact sheets and posters addressing wildfire smoke mitigation in both English and Spanish. These materials are an effective way to help comply with Cal/OSHA's employee wildfire smoke training requirements.

Smoke Exposure in Livestock – As described in an [article](#) from UCD's School of Veterinary Medicine, pets and livestock can experience health effects similar to those experienced by humans. Unfortunately dairy producers have neither the luxury of evacuating the herd from an affected area nor the ability to provide masks for cows. Some mitigation actions suggested by veterinarians however are already standard procedures on dairies. These include misters, free-choice water and low-dust feeds. The American Veterinary Medical association also [recommends](#) limiting as much as possible activities which substantively increase an animal's breathing. If feasible activities such as sorting, transporting and vaccinating should be minimized or postponed. If wildfire smoke is occurring concurrently with a heat event, minimizing heat stress in the livestock is in order, since heat stress causes an increase in the frequency and depth of breathing. A CDQAP [heat stress advisory](#) detailing mitigation options for both livestock and employees is available.

Responding to Fire (Shelter-in-Place) – A few dairies have actually been threatened by recent wildfires. While primarily addressing hay fires, CDQAP's webpage [Preventing and Controlling Hay Fires on Dairies](#) also contains specific information on responding to a fire on a dairy once it occurs. Relevant highlights include:

- At the first indication the dairy is going to be threatened call 911 to get in line for available resources. Fire engines can be in short supply during a large campaign fire and it is wise to make requests as early as possible.

California Dairy Quality Assurance Program

www.cdqa.org



- Account for all dairy employees. Organize evacuation routes and a transportation plan to activate if and when the facility is in danger of being overrun.
- Move any threatened vehicles and equipment from the path of the fire to a safer area if possible.
- If there are flammable or hazardous materials close to the fire (fuel, herbicides, pesticides) move them away from structures or animals if possible.
- If needed create a fire break by disking, mowing or bulldozing a 15-foot wide perimeter around the structures or fuel such as hay stacks. If a water supply and hose is available, wet the remaining vegetation.
- Clear a path for emergency vehicles by ensuring there are no gates, vehicles or equipment blocking roads leading to the involved area.
- When fire service arrives, guide them to the fire. Fire engines are heavy; direct them on roads if possible since they can become mired in mud caused by water used to extinguish the fire.
- Inform the Fire Service Incident Commander of the following:
 - If all employees are safe and accounted for.
 - If livestock are in need of protection, rescue or movement.
 - What water sources are available on the dairy and how to access them.
 - What heavy equipment, such as bull dozers, front end loaders, mowing decks and hay squeezes can be made available to assist in the firefighting efforts.
- Firefighters rarely have experience moving livestock. If circumstances require relocation of livestock to a safer area on the facility, the producer's direction and leadership is usually in order.

For producers with facilities at high risk of wildfire, UCD's School of Veterinary Medicine developed a comprehensive 30 minute [video](#) which explains how rural firefighting works. It touches on topics like structure protection and commonly used equipment. Importantly the video also explains how farmers and ranchers can best prepare their property to best assist responding firefighters. A short CDQAP article on [preventing hay fires](#) is also available.

Evacuation from Wildfire – While evacuation has been used successfully on occasion for dairies facing flooding, it is unlikely that the same strategy will be useful for a fast moving wildfire. In a [case history](#) describing a 1997 incident, for instance, it took three days to evacuate a 600 cow dairy faced with an overtopping levee. Still, producers evacuating pastured cattle or young stock may find CDQAP's [flood evacuation checklist](#) useful. Relevant information includes identifying transportation resources, protecting herd records and documentation for insurance purposes. For a more complete review of the subject producers are referred to the CDQAP webpage [Coping with Flooding and Evacuation](#).

Producers with questions can contact Dr. Michael Payne at 530-304-9306 or mpayne@ucdavis.edu

California Dairy Quality Assurance Program

www.cdqa.org

